

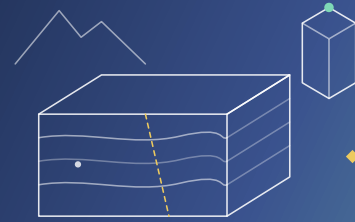
Module code

SPG-3401

Type of module

Undergraduate: Geosciences – Elective

Engineering Geology



Modular credits

4

Total student
engagement

56 hours

Prerequisite

SPG-1203 Introduction
to Geology

Anti-requisite

None

Aims

To introduce students to Engineering Geology with emphasis on Geotechnical and Civil Engineering applications. It provides essential knowledge to identify geological factors affecting design, construction, and maintenance, and to develop solutions to geo-environmental problems.

Module learning outcomes (MLO)

On successful completion of this module, a student will be expected to be able to:

MLO 1

Assess geological conditions for engineering purposes.

MLO 2

Collect and organise data for construction projects and environmental problems.

MLO 3

Analyse the causes of failures and define future measures for protection.

MLO 4

Recommend solutions for pertinent environmental problems.

MLO 5

Design basic site investigations and advise professionals or organisations.

Module contents

Engineering description of soils and rocks and factors affecting their strength behaviour	Mohr's circle, rock mass and soil mass classification, geotechnical mapping	Strength Tests
Calculation of Subsidence	Simulation of Landslide	Effective stress and shear strength behaviour of soils
Site investigation, stages, design, implementation and field tests	Drilling and sampling techniques	Geotechnical conditions in surface and underground constructions

Assessment

60%

Examination

40%

Coursework

Examination
60%

20%

20%

■ Examination — 60% ■ Lab reports — 20% ■ Group report — 20%

Formative assessment

Weekly practicals,
discussion and
feedback

Summative assessment

COMPONENT	WEIGHTING
Examination	60%
Coursework	40%
Individual	20%
Lab reports	20%
Group	20%
Group report	20%

Graduate attributes and skills

Programme learning objectives (PLO) addressed

1

PLO 1 (Fundamental Theoretical Knowledge in Geosciences)

2

PLO 2 (Application of Scientific Methods and Data Analysis)

3

PLO 3 (Integrated Laboratory, Field, and Technical Skills)

4

PLO 4 (Critical Thinking and Problem-Solving Skills)

5

PLO 5 (Sustainability and Responsible Practice)

Sustainability concept addressed

4

SDG 4 Quality Education

8

SDG 8 Decent Work and Economic Growth

11

SDG 11 Sustainable Cities and Communities

Digital skills/software used (not limited to)

■ Application software (e.g. Microsoft Word, Microsoft Excel)

■ Numerical Modelling Software (e.g. Geostudio)

■ Learning management systems (e.g. Canvas)

Micro-credentialling option

No

Stackable towards GenBESTARI Undergraduate Degree Programme or other relevant Lifelong Learning Programmes

No

Document details

Office ODVCE

Document date 27 August 2026

Status New

Approval GBF (12/02/2006)